

R16/R15/R13/R09

Code No: 137FT/127GP/117GP/57023

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2021

POWER PLANT ENGINEERING

(R16 – Mechanical Engineering; R15 - Mechanical Engineering; R13 - Mechanical Engineering; R09 - Mechanical Engineering)

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

- 1.a) Explain the resources and development of power in India. [8+7]
b) Discuss ash handling systems in detail.
- 2.a) Explain pulverized fuel burning system and its components. [8+7]
b) Write about corrosion and feed water treatment?
- 3.a) Classify and explain the types of IC engines. [8+7]
b) Discuss the working of cooling system with neat diagram?
- 4.a) Explain the construction, layout with auxiliaries of gas turbine power plant. [8+7]
b) Write about principle of operation of thermo electric and MHD generation.
- 5.a) Discuss the water power, hydrological cycle and flow measurement. [8+7]
b) Explain hydrographs and drainage area characteristics.
- 6.a) Illustrate the principle of working of solar collectors. [7+8]
b) Explain types of wind energy with neat sketches.
- 7.a) Discuss the working of sodium-graphite reactor and fast breeder reactor. [8+7]
b) Explain the radiation hazards and shielding.
- 8.a) In a 60 MW steam power station working at 40 % load factor the energy cost is found to be 5 paise /kWh. Calculate the cost of energy of the power station load factor is improved by 50 %. Due to increased energy generation the fuel cost increases the annual generation cost of 6%. [8+7]
b) Discuss pollutants and pollution standards.

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